

We Claim:

1. An improved process for isolation of withaferin-A from plant materials and products therefrom, said process comprising steps of:
 - (i) extracting the said plant material in an extraction solvent,
 - 5 (ii) defatting the extract, as obtained in step (i), with partitioning with n-hexane followed by chromatographic separation to obtain withanolidal,
 - (iii) portioning out withanolidal aglycones from the withanolidal, as obtained in step (ii), into a chloroform followed by evaporation of said chloroform, and
 - 10 (iv) dissolving extract as obtained in step (iii) in methanol to obtain withaferin-A.
2. The process as claimed in claim 1, wherein the extraction solvent consists of water and alcohol in the ratio varying in the range of 100 % to 0 %.
3. The process as claimed in claim 1, wherein the said material is selected from the
15 group consisting of dry and fresh biomass of plant / plant material to avoid desiccation/ air drying induced variability of withanolidal contents.
4. A method as claimed in claim 3, prior washing of the dry material with water and the prior water extraction, affords two fold improvement in withaferin-A yield compared to approach of alcohol or aquated alcohol extraction.
- 20 5. The process as claimed in claim 1, wherein the chromatographic separation technique is selected from group consisting of High Pressure Liquid Chromatography and Thin Layer Chromatography.
6. The process as claimed in claim 1, wherein the extraction solvent system used is a mixture of water and alcohol.
- 25 7. A method as claimed in claims 1, 2, 9 and 10, the high resolution system for withanolides including withaferin-A consisted of plate running solvent composition of chloroform : ethyl acetate : methanol : benzene in the proportion of 70 : 4 : 8 : 24.
8. The process as claimed in claim 5, wherein percentage of water in the said extraction solvent system is in the range of 20 % to 40 % and rest is alcohol.
- 30 9. The process as claimed in claim 5, wherein percentage of water in the said extraction solvent is preferably 40 % and rest is alcohol.
10. A method as claimed in claim 5, wherein selecting alcoholic solvent from a water-miscible group comprising methanol, ethanol and others with compatible polarity,

dielectric constant and dipole moment or any single solvent devised to have such chemical properties matching to the admixture.

- 5 11. The method as claimed in claim 1, wherein the solvent system used is used for co-extraction of polar withanolidal phytochemicals selected from the group consisting of glyco-conjugates, withanosides, sitoindosides and halo-withanolides.
12. The process as claimed in claim 1, wherein the process provides quantitative profiling of withaferin levels for standardization of botanicals, herbal products, phytomedicines, nutraceuticals and food supplements.
- 10 13. A method as claimed in claim 1, wherein products from such plants can be in any form from, including but not limited to, such as powders, pastes, saps, capsules, tablets, syrups etc.
14. A method as claimed in claims 1, wherein extraction of withaferin A from fresh herbs gives better recoveries and accurate *in planta* estimations in the solvent compositions developed for withaferin-A.

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